Title	[Book review] "Thai Rice Farming in Transition edited by Akimi Fujimoto, Kamphol Adulavidhaya, and Toshiro Matsuda"
Author(s)	Higashi, Shigeki
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BOOK REVIEWS

Thai Rice Farming in Transition edited by Akimi Fujimoto, Kamphol Adulavidhaya, and Toshiro Matsuda, Tokyo, World Planning Co.,* 1990, 330 pp.

Rural Thailand has been experiencing dramatic socioeconomic changes since the 1970s. Thai development policies enhancing penetration of the cash economy have had a great influence on rural areas. The Green Revolution, one of the distinguishing changes, has brought about not only technological innovation but also economic transformation of rural villages. Many scholars and institutions have conducted field research and investigated the effects of this new agrarian technology. However, so far only a few books and reports have analyzed this socioeconomic impact on farmers and on the village society in Thailand at the micro-level. This book provides detailed farm-level surveys which clarify the socioeconomic structures in three typical Thai villages during the introduction of the Green Revolution.

This book is the final product of a cooperative research project conducted by Japanese and Thai scholars. The editors are from the Tokyo University of Agriculture and Kasetsart University. They carried out farm household surveys from 1985 to 1988 in the main rice-growing areas in three regions of Thailand: Phatthalung province in the south, Suphan Buri province in the central plain, and Chiang Mai province in the north. The study villages, where the diffusion of irrigation facilities enables rice double-cropping, were selected so as to clarify the effects of the new rice technology. The researchers surveyed the villages using the complete survey method. They conducted interviews with about 100 rice farmers in each village using a detailed questionnaire.

The book is comprised of eighteen papers contributed by fourteen scholars and is divided into three parts: background, comparative analysis of the three study villages, and case studies of each village. First the contents of each paper will be summarized, and later comments on the analysis of the socioeconomic impact of the Green Revolution will be made.

Part One consists of three papers. The first by N. Kanazawa postulates economic characteristics of traditional rice farming in Thailand, comparing it with modern double-crop rice farming. Kanazawa conducted a field survey at a deep-water rice farming village in Ayutthaya province. The annual flood begins late in the rainy season in the area of the "old" Chao Phraya delta, which is located to the north of Ayutthaya in the central plain. Farmers still continue to grow local rice varieties adapted to the natural conditions. Compared with the new rice technology, this traditional rice farming is characterized by stable but low yields. Modern farm management can realize higher yields, but farmers are forced to take more risks.

Kamphol Adulavidhaya's paper is a summary of past agricultural development and the current rice policies of the Thai government. The world market for agricultural products tends to fluctuate remarkably, and trade competition in the world rice market is growing more severe. As a result the price of rice has fallen. In recent years the Thai government has focused on the readjustment of the production structure and on

* The publisher's address: 2-18-2-403, Akasaka, Minato-ku, Tokyo 107, Japan.

the diversification of crop cultivation so that production better corresponds to the world market demand.

K. Ota points out the significance of promoting agricultural cooperatives as farmer self-help organizations. He shows that in the domestic rice-marketing channel the price-setting mechanism functions inefficiently at the level of the farmer compared with wholesale and retail levels. This is due to the farmers' lack of bargaining power. To benefit farmers and to develop export-oriented rice farming, Ota points out that it is necessary to provide price incentives to farmers through rationalization of the agricultural market system.

Part Two contains eight papers. The first three papers sketch a general description of the study area in Phatthalung, Suphan Buri, and Chiang Mai. The other five papers are comparative analyses of these three villages. S. Sato focuses on the relationship between rice varieties and the environmental conditions in the three villages. Although there are irrigation facilities in the research fields, modern high-yielding rice varieties (RD series) have been fully adopted only in Suphan Buri, and most farmers in the other two villages still grow traditional varieties due to the lack of water. Sato also suggests that it would be useful to change rice varieties or crops in order to protect rice plants from disease.

A. Fujimoto analyzes the effects of land tenure systems on technological innovation, on efficiency of rice production, and on income distribution. The average yield per *rai* (1 *rai* = 0.16 ha) declined as farm size increased in Chiang Mai and Phatthalung, which was consistent with the declining intensity of fertilizer use. But in Suphan Buri, the most advanced rice technology area, the average yield per *rai* remained almost constant across different farm sizes. On the other hand, the average production cost per unit of product seemed to decline as farm size became larger in the three villages. This suggests the existence of economies of scale in rice production. Fujimoto concludes that farm size should be enlarged in order to increase efficiency and equalize income distribution.

It appears that rice farming in Thailand can no longer expand outwardly by means of land reclamation. T. Matsuda's paper focuses on the characteristics of intensified land use and rice farming in the three villages. Because of land fragmentation and water conditions, the fertility of each plot was different even in the same villages. In addition, there was a wide variation in the use of modern inputs among farmers, which resulted in different average yields. Therefore Matsuda proposes improvement of farming techniques and land conditions. T. Higuchi attempts to analyze the relationship between the ownership of power tillers and family labor input in the Suphan Buri village where all farmers owned or hired power tillers. The hypothesis that owners of power tillers have a higher marginal valuation of family labor than non-owners is proved by the method of variable profit function analysis. This result signifies that the ownership of a power tiller has been a rational behavior for farmers in pursuit of a larger profit. The last paper in Part Two by Kamphol, using production function analysis, demonstrates that education and farming experience have played an important role in improving the productivity of rice farms.

Part Three consists of seven papers. The first two are based on the data collected in the study village in Phatthalung. In Thailand organified farmer groups were legalized in 1972. Rangsan Pitipunya investigated the possible role of these groups in the dissemination of new rice technology. However, he found no significant differences between members and non-members of such groups largely because of improvements made in the agricultural extension system in 1977 when contact farmers became

the disseminators of the new technology which they made available to all farmers. Y. Masuda's paper focuses on the mechanism of input-output relationship among groups of farmers categorized by farm size and land holdings. The rice yield per *rai* for farmers of small plots was higher than that for large plots due to the labor-intensive nature of rice farming. Owner farmers were not necessarily more productive than owner-tenants and tenants. These results imply that the recommended standard technology has not been established equally among the farmers in the study village.

The next three papers deal with important issues in the study village in Suphan Buri. The piece by Jerachone Sriswasdilek examines the general irrigation situation in the village and the water problems affecting production at the farm level. Although Suphan Buri has been one of the most advanced irrigated areas in Thailand, many farmers have had water problems, ranging from insufficient supplies to flooding, which have decreased rice yields. Because of these problems, farmers in the area have been carrying on various types of water management strategies.

Another problem has been a shortage of labor, and recently most farmers in irrigated areas have adopted pre-germinated direct seeding techniques in response to this shortage. The paper by Somporn Isvilanonda presents the effects of this new technology on farm management. The adoption of the new direct seeding method has led to a decline in both family labor and hired labor while at the same time total production costs have been reduced and the rice yield increased. As a result the net revenues derived from the new direct seeding method are higher than those from the transplanting method. Another important recent socioeconomic change in the study area has been the increase of off-farm employment. Kiatichai Vesdapunt examines factors determining the magnitude of rural off-farm employment. His study clearly shows the correlation between off-farm employment and farm size, family size, sex, group membership, and land ownership.

The last two papers describe the situation of the agricultural economy in Chiang Mai. Saran Arayarangsarid's paper estimates the resource productivity of rice farming in the study village using production function analysis. His results show that the expansion of planted area is appropriate for a higher economic efficiency, however the amount of available land is limited. One way to get higher returns would be to increase factor efficiency by adopting new rice varieties or improving water supplies in the dry season. Paiboon Suthasupa gives an overview of the agricultural extension system stressing the role of extension agents based on village and contact farmers. The objective of this training and visit system has been to disseminate new technology to farmers more appropriately.

The book's analysis of the papers is not always well integrated. For example, Fujimoto states that in Phatthalung the average yield per *rai* corresponded to the intensity of fertilizer use (p. 166), but Masuda has concluded that the yield per *rai* of small-size farmers was higher than that of large-size farmers because the rice farming of the former was more labor intensive (p. 275). When dealing with farm management by the differences in the size of rice farms, the book should have analyzed labor productivity and land productivity in order to investigate the existence of economies of scale in rice production. It is a disappointment that there was no real discussion among the authors to clarify what factors are the most important in determining efficient rice farm management.

However, the conclusion of each paper is full of suggestions. Two issues are important in regard to the socioeconomic effects of the Green Revolution. The first is the impact of the new rice technology on the management of farms of differing sizes.

It has been controversial whether this new technology has been advantageous to large-size farmers. In Thailand the adoption of the new technology has seemingly been carried out in irrigated areas irrespective of farm size because small-size farmers who do not own power tillers can hire them. Fujimoto clarifies the existence of economies of scale, and at the same time the diseconomies of scale have emerged only among large-size farmers in Suphan Buri (pp. 170–71). In my view, this implies that if technological innovation prevails such as the use of combine harvesters, large-size farmers can enlarge their farm management. However, the fragmentation of rice fields and the fluctuation of the rice price are obstacles to large-size farm management and need to be taken into consideration.

The second issue is the change in the labor input pattern of rice farming using the new technology. There is a dispute whether introduction of high-yielding varieties is labor saving technology. Because farmers in Thailand can now double crop and must put more fertilizers and insecticides, this new technology requires more labor despite the use of power tillers. But since the 1980s the increase in the wage rate because of the labor shortage during the peak agricultural season has induced farmers to adopt labor-saving techniques. Somporn points out that pre-germinated direct seeding techniques have led to a labor saving in rice production, but this saved labor has not been utilized in rural off-farm employment (p. 300). This is true; however, the labor market should not be analyzed only within the context of the rural areas. It also suggests that industrialization in urban areas has absorbed the rural labor force which means that the wage rate at the factory affects the wage rate of hired agricultural labor. One issue overlooked in this book is an analysis of hired labor and the labor from the villages that has gone to work in urban areas. The results of my field research conducted in the village in Suphan Buri in 1991 showed that 28 per cent of household heads in the village engaged in hired labor. This topic needs further study. (Shigeki Higashi)

Demographic Transition in China: Fertility Trends since the 1950s by Peng Xizhe, Oxford, Clarendon Press, 1991, xiv+323 pp.

One of the real achievements of this new book is to have carried out an extensive survey on China's fertility and produced findings which are both informative and useful. Peng has used abundant materials to organize and analyze the demographic transition in China, especially the fertility trends, particularly those in the different regions, and the determinants of these trends, during the forty years following the founding of the People's Republic of China in 1949.

Demographers such as Ronald Freedman have suggested that a declining fertility in developing countries may come about when there is economic development above a certain level, a low mortality rate, a tendency toward small families, the establishment of efficient networks in local society, and along with these the accessibility to systematic government and private family-planning programs and contraceptive measures.[1] Peng

[1] See, for example, Ronald Freedman, "Theories of Fertility Decline," in *Fertility and Mortality: Theory, Methodology and Empirical Issues*, ed. K. Mahadevan with P. J. Reddy and D. N. Naidu (New Delhi: Sage Publications, 1986).